General Specifications

**Centaur® 40 Gas Turbine**

- Industrial, Single-Shaft
- 11 Stage Axial Compressor
  - Variable Inlet Guide Vanes and Stators
  - Pressure Ratio: 10:1
  - Inlet Airflow: 41.3 kg/sec (18.7 lb/sec)
  - Vertically Split Case

- Combustion Chamber, Annular-Type
  - 10 Conventional Fuel Injectors or 12 Lean-Premixed, Dry Low Emissions SolNoX Injectors
  - Single Torch Ignitor System

- Power Turbine
  - 3-Stage Reaction
  - Clockwise Rotation

- Bearings
  - 3 Radial Journal: Tilt-Pad
  - Thrust, Active: Tilt-Pad
  - Thrust, Inactive: Fixed Tapered Land

- Coatings
  - Compressor: Inorganic Aluminum
  - Turbine and Nozzle Blades: Precious Metal Diffusion Aluminide

- Vibration Monitoring
  - Velocity Transducers

**Main Reduction Drive**

- Epicyclic Type
  - 1500 or 1800 rpm (50 or 60 Hz)
  - Vibration monitoring: Acceleration Transducer

**Generator**

- 4 Pole, 3 Phase, 6 Wire, Wye Connected, Synchronous with Permanent Magnet Generator Exciter
- Available Construction Types:
  - Open Drip-Proof Construction
  - CACA/TEAAC (Closed Air, Cooling Air/Title Enclosed, Air to Air Cooling)*
  - CACW/TEWAC (Closed Air, Cooling Water/Title Enclosed, Water to Air Cooling)*
- Sleeve Bearings
- Vibration Monitoring; Velocity Transducers
- Vibration Monitoring; Displacement Transducers*

**Package**

- Mechanical Construction
  - Steel Base Frame with Drip Pans
  - 316L Stainless Steel Piping
  - Compression Type Tube Fittings
- Start System
  - Direct Drive AC Motor with VFD Control
- Package Electrical Certification
  - NEC, CSA Class 1, Group D, Div.2

**Fuel System**

- Natural Gas
- Diesel*
- Dual (Natural Gas and Diesel)*
- Low BTU Gas*

- Integrated Lube Oil System
  - Turbine-Driven Lube Pump
  - AC Motor Driven Pre/Post Lube Pump
  - DC Motor Driven Backup Lube Pump
  - Air to Oil Cooler
  - Water to Oil Cooler*
  - Integral Lube Oil Tank
  - Lube Oil Tank Heater
  - Lube Oil Filter
  - Duplex Lube Oil Filter*
  - Oil Tank Vent Separator with Flame Arrestor

**Air Inlet and Exhaust Systems**

- Carbon Steel
- Stainless Steel*
- Barrier Type Filters
- Self-Cleaning Filters
- Inlet and Exhaust Silencers
- Inlet Evaporative Cooler*
- Inlet Chiller Coils*

**Enclosure**

- Complete Package
- Driver Only*
- Fire Detection and CO2 Suppression System

**Vibration Monitoring**

- Velocity Transducers

**Auxiliary and Remote Display/Control Terminals**

- Turbine Performance Map*
- KW Import Control*
- KVAR/Power Factor Control*
- ControlNet Redundant Media, Ethernet, Data Highway Plus or Modbus RS232/422/485 Supervisory Interface*
- Heat Recovery Application Interface*
- Multi-Unit Applications: Load Shed Control, Import/Export or kW/KVAR Control Panels*
- InSight System™ Equipment Health Management*
- Printer/Logger*

**Electrical System Options**

- Neutral Grounding Resistor or Transformer*
- Switchgear and Generator Protective Relay*
- Motor Control Center with Automatic Transfer Switch*

**Documentation**

- Drawings
- Quality Control Data Book
- Inspection and Test Plan
- Test Reports
- O&M Manuals

**Factory Testing of Turbine**

**Factory Testing of Package Systems**

- Non-Dynamic
- Dynamic
### Performance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Power</td>
<td>3515 kW/h (12,910 kW)</td>
</tr>
<tr>
<td>Heat Rate (kJ/kW-hr)</td>
<td>12,910</td>
</tr>
<tr>
<td>Exhaust Flow (kg/hr)</td>
<td>68,365</td>
</tr>
<tr>
<td>Exhaust Temp. (°C)</td>
<td>445</td>
</tr>
</tbody>
</table>

### Application Performance

- **Steam (Unfired):** 8.9 tonnes/hr (19,600 lb/hr)
- **Steam (Fired):** 50.9 tonnes/hr (112,190 lb/hr)
- **Chilling (Absorp.):** 7670 kW (2180 refrigeration tons)

**Nominal rating – per ISO**
- At 15°C (59°F), sea level
- No inlet/exhaust losses
- Relative humidity 60%
- Natural gas fuel with LHV = 35 MJ/Nm³ (940 Btu/scf)
- No accessory losses

**Engine efficiency:** 27.9% (measured at generator terminals)

### Enclosure Access and Maintenance Space

- **Generator Maintenance:** 3.0 m (9' 10")
- **Minimum Clearance Required for Engine Removal:** 3.0 m (9' 10")
- **Minimum Space Clearance Required for Enclosure Access Doors and Routine Operation and Maintenance:** 9.8 m (32' 2")

Package Height: 3.2 m (10' 5")
Package Weight: 31,600 kg (69,600 lb)